

WHAT IS CLAIMED IS:

1. A test tube type discrimination apparatus comprising:

5 first and second electronic cameras which pick up images of a plurality of test tubes held in a test tube rack one by one, the first electronic camera picking up an image from an opening of each of the test tubes and the second electronic camera picking up an image from a side thereof;

10 a pattern recognition unit which receives data of the images picked up by the first and second electronic cameras and extracts an edge of each of the images to recognize a test tube pattern of each of the test tubes including opening and side patterns of each of the test tubes;

15 a standard pattern memory which stores the opening and side patterns of the test tubes as standard patterns; and

20 a comparison determination unit which compares the test tube pattern recognized by the pattern recognition unit and the standard patterns of the test tubes stored in the standard pattern memory to determine a type of each of the test tubes.

25 2. A test tube type discrimination apparatus comprising:

a single electronic camera which picks up images of a plurality of test tubes held in a test tube rack

one by one from between an opening and a side of each of the test tubes;

5 a pattern recognition unit which receives data of the images picked up by the electronic camera and extracts an edge of each of the images to recognize a test tube pattern of each of the test tubes including an integral inclined pattern of opening and side patterns of each of the test tubes;

10 a standard pattern memory which stores integral inclined patterns of opening and side patterns of the test tubes as standard patterns; and

15 a comparison determination unit which compares the test tube pattern recognized by the pattern recognition unit and the standard patterns of the test tubes stored in the standard pattern memory to determine a type of each of the test tubes.

20 3. The test tube type discrimination apparatus according to claim 1, wherein the first and second electronic cameras each employ a CCD as an image pickup device.

4. The test tube type discrimination apparatus according to claim 2, wherein the electronic camera employs a CCD as an image pickup device.

25 5. The test tube type discrimination apparatus according to claim 1, further comprising a sorting unit which sorts the test tubes whose images are picked up, according to a type based on determination results of

the comparison unit.

6. The test tube type discrimination apparatus
according to claim 2, further comprising a sorting unit
which sorts the test tubes whose images are picked up,
5 according to a type based on determination results of
the comparison unit.